

CURRICULUM VITAE

Steven A. Goldman, M.D., Ph.D.

Current titles: Edward and Alma Vollertsen Rykenboer Professor of Neurophysiology and
Chairman, Department of Neurology, University of Rochester Medical Center
Neurologist-in-Chief, Strong Memorial and Highland Hospitals

Dean Zutes Chair in Biology of the Aging Brain and
Chief, Division of Cell and Gene Therapy
Co-Director, Center for Translational Neuromedicine

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Birthdate: ----(b)(6)-----

Birthplace: -----(b)(6)-----

Marital status:
------(b)(6)-----

Positions:

2008- Chairman, Department of Neurology, University of Rochester Medical Center
Neurologist-in-Chief, Strong Memorial and Highland Hospitals

2008- Edward and Alma Vollertsen Rykenboer Professor of Neurophysiology

2008- Program Director in Neuro-oncology, University of Rochester Medical Center

2007- Co-Director, Center for Translational Neuromedicine
University of Rochester Medical Center-Strong Memorial Hospital

2004- Professor of Neurosurgery (*secondary appointment*)
Professor of Pediatrics (*secondary appointment*)
University of Rochester Medical Center

2003- Dean Zutes Chair in Biology of the Aging Brain
University of Rochester Medical Center

2003- Professor of Neurology (*adult neurology; primary appointment*)
Chief, Division of Cell and Gene Therapy
Attending Neurologist-Strong Memorial Hospital
University of Rochester Medical Center

2003- Adjunct Professor of Neurology
Weill Medical College of Cornell University

2001-2003 Nathan Cummings Professor of Neurology and Neuroscience
Cornell University Medical College

1997-2003 Senior Attending Neurologist
The New York Presbyterian Hospital

1997-2001 Professor of Neurology and Neuroscience
Cornell University Medical College

1997 Associate Professor of Neurology and Neuroscience (*with tenure*)
Cornell University Medical College

1992-1997 Associate Professor of Neurology and Neuroscience
Cornell University Medical College

1988-1992 Assistant Professor of Neurology
Cornell University Medical College

1988-1992 Assistant (1988-1992) and Associate (1992-1997) Attending Neurologist
The New York Hospital-Cornell Medical Center

Education:

(b)(6) Secondary school Akiba Hebrew Academy
Merion Station, Pennsylvania

(b)(6) B.A., *summa cum laude* University of Pennsylvania
Biology and Psychology Philadelphia, Pennsylvania

1983 Ph.D., Neurobiology The Rockefeller University
New York, N.Y.

1984 M.D. Cornell University Medical College
New York, N.Y.

Clinical training:

1984 - 1985 Intern in Medicine Department of Medicine
New York Hospital-Cornell Medical Center
Memorial Sloan-Kettering Cancer Center, NYC, NY

1985 - 1987 Resident in Neurology Department of Neurology & Neuroscience
The New York Hospital-Cornell Univ. Medical College
Memorial Sloan-Kettering Cancer Center, NYC, NY

1987 - 1988 Chief Resident Department of Neurology
The New York Hospital-Cornell Univ. Medical College
NYC, NY

Hospital attending staff privileges

Strong Memorial Hospital
University of Rochester Medical Center, Rochester, NY (2003-present)

Highland Hospital
University of Rochester Medical Center Rochester, NY (2003-present)

Rochester General Hospital
Rochester, NY (2010-present)

New York Presbyterian Hospital
New York, NY (1988-2004)

Medical Certifications:

1985 Diplomat
National Board of Medical Examiners, NBME ---(b)(6)----

1985 Medical Licensure, The State of New York
NYS ---(b)(6)----

1989 Board Certification in Neurology (Adult)
American Academy of Neurology and Psychiatry, certification ---(b)(6)----

2010 Advanced Cardiac Life Support, *recertification current*

Doctoral Dissertation:

1983 Neuronal production, migration and differentiation in the adult canary brain, *in vivo* and *in vitro*.
Thesis advisor: -----(b)(6)-----

Awards/Honors:

Presidential Lectureship, American Academy of Neurology, 2010
James S. McDonnell Science Foundation Award, 2005-10
Presidential Plenary lecturer, American Neurological Association, 2005
Berlex Fellow in Regenerative Medicine, 2004-2006
Jacob Javits Neuroscience Investigator Award, NINDS, 2002-2009
Irma T. Hirschl Career Scientist Award, 1993-97
FIRST Award, NIH/NINDS, 1992-97
Clinical Investigator Development Award, NIH/NINDS, 1988-93
Cornell Scholar in Biomedical Science, 1988-91
Medical Scientist Training Program trainee, USPHS, 1978-84
Grass Foundation Fellowship, 1978
Phi Beta Kappa, University of Pennsylvania, 1977
Mayor's Scholar, City of Philadelphia, 1974-78
Senatorial Scholar, State of Pennsylvania, 1974-78
Benjamin Franklin National Scholar, Univ. of Pennsylvania, 1974-78

Honorary and Professional Societies:

Association of University Professors of Neurology (*elected 2008*)
Association of American Physicians (*elected 2007*)
American Society for Clinical Investigation (*elected 2001*)
American Neurological Association (*elected 1995*)
American Society for Neuro-oncology

American Academy of Neurology (*boarded 1989*)
American Society for Gene Therapy
American College of Physicians
American Society for Experimental Neurotherapeutics
American Association for the Advancement of Science
Society for Neuroscience
International Society for Stem Cell Research
American Society for Neurochemistry

Journal editorial functions and boards

Experimental Neurology (*section editor, cellular and molecular neuroscience*), 2007-10
Clinical and Translational Science, 2007-
Molecular and Cellular Neuroscience, 2009-
Frontiers in Neuroscience, 2010-

Journal reviewer:

Nature Medicine (>5/year)
Nature Neuroscience (>5/year)
Nature Biotechnology (>5/year)
Cell Stem Cell (>5/year)
Journal of Neuroscience (>5/year)
Experimental Neurology (>5/year)
Neuron (2-5/year)
Journal of Clinical Investigation (2-5/yr)
Neurology (2-5/yr)
Annals of Neurology (2-5/year)
Lancet Neurology (2-5/year)
Stem Cells (2-5/year)
Proc. National Academy of Science (2-5/year)
Molecular & Cellular Neuroscience (*ad hoc*)
Lancet (*ad hoc*)
Science (*ad hoc*)
Science Signaling (*ad hoc*)
Science Translational Medicine (*ad hoc*)
Nature Genetics (*ad hoc*)
Human Gene Therapy (*ad hoc*)
Brain (*ad hoc*)
J. Exp. Medicine (*ad hoc*)
J. Comparative Neurology (*ad hoc*)
Stroke (*ad hoc*)
Molecular Therapy (*ad hoc*)
Glia (*ad hoc*)
Neuroscience Letters (*ad hoc*)
Brain Research (*ad hoc*)

Medical college teaching/clinical (Rochester):

Founding director, Univ. Rochester Neuro-oncology fellowship; UCNS certified program, 2008-present
Attending, stroke/critical care, Univ. Rochester-Strong Memorial Hospital (2-4 weeks *annually*), and
Attending, general neurology service, Univ. Rochester-Strong Memorial Hospital (2-4 weeks *annually*)

Medical college teaching/clinical (Cornell):

Neurology ward and consult attending, Cornell-New York Hospital (daily, 1-2 months/yr; residents)
Neurological diagnosis, lecturer/tutor (once weekly, second-year students, Cornell), 1989-2003
Course Director, Cornell Neurology clinical clerkship (third-year students), 1992-96

Medical college administrative service (Rochester):

Head, Univ. of Rochester Embryonic Stem Cell Research Oversight (ESCRO) committee, 2005-9
Co-chair, Stem Cell Biology planning committee, for University Strategic Plan, 2006
Executive committee, Dept. of Neurology, Univ. Rochester, 2003-present

Medical college administrative service (Cornell):

Advisory committee, Tri-institutional MD/PhD program (Cornell-Rockefeller-SKI), 1996-98
Promotions and tenure committee, Dept. of Neurology, Cornell Univ. Med. College, 2002-3
CUMC curriculum committee, 1992-96
Promotions and Graduation committee, 1992-96
Admissions committee, Cornell Univ. Medical College, 1989-90

Graduate school teaching/research:

Brain Plasticity and Repair, advanced seminar (University of Rochester BCS 548, Fall 2009)
Pathways of Disease, lecturer (University of Rochester; 2003-4)
Molecular Basis for Neurological Disease (Cornell Med, graduate school; 1997-2000; course Co-Director)
Cellular Neuroscience, lecturer (Cornell Med, graduate school; annual seminar)

Hospital service

University of Rochester Medical Faculty Group, executive committee, 2008-present

Government service/Federal:

1996 NIH/NINDS Broad agency/RFP 96-07 review panel
1997 NINDS Neuro-B2 review committee, *ad hoc*
1998 NINDS/SBIA review committee, *ad hoc*
1999 NINDS Neural Stem Cell advisory panel
2000 NINDS Special Emphasis Panel ZNS1-L01, *ad hoc*
2000-4 FDA Biological Response Modifiers Advisory Committee, *ad hoc*
2001 NHLBI RFA PA-01-006 Study Section (Stem Cell Plasticity)
2001 NINDS MDCN7 fellowships section, *ad hoc*
2002-4 NINDS MDCN-6, *ad hoc*
2002 NIMH SRG, *ad hoc*
2003 NINDS MDCN-6, *ad hoc*
2003 NINDS SRG, *ad hoc*
2004 NIA SRG, *ad hoc*
2005-7 NINDS NCF (old MDCN-6), *ad hoc*
2006 NINDS CNNT, *ad hoc*
2007-2010 NINDS NCF (Neurogenesis & Cell Fate), *chartered member, 4 year term*
2007 NINDS Board of Scientific Counselors, *ad hoc*
2007 NINDS Blueprint for Neuroscience Research, Stem Cell committee
2007 NIH Recombinant DNA Advisory Committee, *ad hoc*
2008-10 FDA Cellular, Tissue and Gene Therapies Advisory Committee (CTGTAC), *ad hoc*
2008 NIH NIBIB review panel, Enabling Technologies for Regenerative Medicine, *ad hoc*
2009 NINDS ARRA RC2 GO Award subsections, *ad hoc*
2010 NINDS Udall Award P50 review committee, *ad hoc*
2010 NINDS NSD (Neurological Sciences & Disorders)-K clinical trials committee, *ad hoc*
2010-present FDA Cellular, Tissue & Gene Therapy Advisory Committee, *member, 2010-14 term*
2011 NINDS MDCN-2 ZRG1 study section, *chair*

Government service/State:

State of Connecticut Stem Cell Program, review committee, 2009 and 2010
New York State Stem Cell Research Program (NYSTEM), meeting planning committee, 2009-2011
New York State Stem Cell Research Program (NYSTEM), leader, translational research forum, 2011

Professional society service

National Multiple Sclerosis Society, Stem Cell Therapies in MS Symposium, co-organizer, 2006
American Society for Gene Therapy, Neural Disorders committee, 2001-2005
Society for Neuroscience, Neurobiology of Disease workshop head (Stem Cell Therapeutics), 2002
NY Academy of Medicine/Ellsberg Neurosurgery fellowship, executive committee, 2001-2005
Association for Nervous and Mental Diseases (ARNMD), annual meeting, President, 2001

Foundation advisory boards

Adelson Program in Neurological Repair and Regeneration (*executive committee*)
NY Stem Cell Foundation (*medical advisory board*)
National Center for Regenerative Medicine, Case Western Reserve University, Cleveland (*external SAB*)

Foundation service

Michael J. Fox Foundation, Rapid Translation Initiative advisory group, 2009
Christopher Reeve Paralysis Foundation, stem cell advisory group, 2007
Children’s Neurobiological Solutions, Boston, MA (*scientific advisory committee*)
National Multiple Sclerosis Society, NYC, grant reviewer (*study section B, ad hoc*)
Israel-US Bi-National Trust, Tel-Aviv, grant reviewer (*annual*)
Michael J. Fox Foundation, NYC, grant reviewer (*ad hoc*)
Christopher Reeve Paralysis Foundation, NJ, grant reviewer (*ad hoc*)
Wellcome Trust, England, grant reviewer (*ad hoc*)
Marsden Foundation, New Zealand, grant reviewer (*ad hoc*)
Volkswagen Foundation, Germany, (*ad hoc*)
Science Foundation of Ireland, grant reviewer (*ad hoc*)
Craig Nielsen Foundation, grant reviewer (*ad hoc*)

Past postdoctoral fellows:

- (b)(6)----- to the Institute of Neurophysiology, Moscow, Russia)
- (b)(6)----- to the Dept. of Animal Behavior, Rockefeller Univ.)
- (b)(6)----- Asst. Professor of Pathology, Harvard Medical School)
- (b)(6)----- Assoc. Professor of Neurosurgery, U. of Florida Med. Ctr.)
- (b)(6)----- staff scientist, Dermatech Corp., New Jersey)
- (b)(6)----- to fellowship in hematology, Cornell Univ. Medical College)
- (b)(6)----- Assistant Professor of Neurology, Univ. of Rochester)
- (b)(6)----- senior scientist, Quantum Biologicals, Inc.)
- (b)(6)----- Assistant Professor of Neurology, Univ. Rochester)
- (b)(6)----- Assistant Professor in Neuroscience, Cornell)
- (b)(6)----- resident in neurology, Univ. of Hamburg, Germany)
- (b)(6)----- Assistant Professor of Neurology, Univ. Rochester)
- (b)(6)----- Resident in Neurosurgery, Duke Univ. Medical School)
- (b)(6)----- Research Associate, Rockefeller University)
- (b)(6)----- Sr. Scientist, Q Therapeutics, Salt Lake City, UT)
- (b)(6)----- Attending Neurologist, Kyoto University)
- (b)(6)----- Assistant Professor of Neurology, Yonsei U., Seoul, Korea)
- (b)(6)----- Senior Editor, Cell Press/Cell Stem Cell)
- (b)(6)----- Research Assistant Professor of Neurology, Univ. Rochester)
- (b)(6)----- staff scientist, India)
- (b)(6)----- junior faculty, CNRS/Paris)

Current postdoctoral fellows:

- (b)(6)-----, Instructor in Neurology, University of Rochester)
- (b)(6)-----

Clinical research fellows (at least 1-year):

- (b)(6) -----, as Resident in Neurosurgery, Columbia-Presbyterian; now Chief of Pediatric Neurosurgery, University of Florida-Shands Hospital)
- (b)(6) ----- as Resident in Neurosurgery, NY Med. Col./Westchester Med. Ctr.)
- (b)(6) ----- as Resident in Neurosurgery, Cornell-NY Presbyterian Hospital)
- (b)(6) ----- Resident in Neurosurgery, Johns Hopkins Hospital; now Chief of Pediatric Neurosurgery, Shriners Childrens Hospital-Philadelphia)

Past predoctoral fellows/graduate students:

- (b)(6) ----- Attending Neurologist, RWJ Medical School, Newark, NJ)
- (b)(6) ----- Attending Neurosurgeon, Wayne State U. Medical School)
- (b)(6) ----- Attending Psychiatrist, Maryland)
- (b)(6) ----- Cornell-Rockefeller MD/PhD; Neurosurg. resident, UCSF)
- (b)(6) ----- Cornell-Rockefeller MD/PhD; Pathology resident, MGH)
- (b)(6) ----- Associate Research Editor, Nature Medicine)
- (b)(6) ----- Cornell/Lisbon PhD; now faculty, INSERM/Paris)

Current predoctoral fellows/graduate students:

- (b)(6) ----- (2005-present; PhD student)
- (b)(6) ----- (2006-present; PhD student)
- (b)(6) ----- (2010-present; Ph.D. student)

Sabbatical visitors (senior scientists on sabbatical in the lab):

- (b)(6) ----- Professor of Cell Biology, Israel Institute of Biological Sciences ---(b)(6)---
- (b)(6) ----- Professor of Physiology, Cornell Univ. Medical College ---(b)(6)---

Technical workshops:

- Becton-Dickinson Corp.: High-speed and multi-channel FACS, 2002
- Becton-Dickinson Corp.: Methods in Fluorescence Activated Cell Sorting, 1998
- BioRad Corp.: Confocal Imaging Techniques, 1995
- Perkin-Elmer Corp.: Advanced PCR Techniques, 1995
- Cleveland Clinic: Comprehensive Clinical Neurophysiology, 1994
- Roosevelt Institute for Cancer Research, Univ. of Colorado: Somatic Cell & Molecular Genetics, 1990
- Cold Spring Harbor Laboratory: Molecular Probes of the Nervous System, 1988
- Cold Spring Harbor Laboratory: Advanced Neuroanatomic Methods, 1979

Corporate consultancies and advisory boards

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Funded research

Active grant support (12 current grants: 5 NIH, 1 DOD, 2 NYS, 3 foundation, 1 corporate; PI on 10, co-PI on 2)

NIH R01 NS75345-01 though -05
Principle Investigator: S. Goldman, MD, PhD
7/11-6/16: \$1,250,000/5 yrs. direct costs (*new award, 6th percentile though council review pending*)
Title: Molecular Regulation of Human Glial Progenitor Cell-Based Remyelination

NY State Stem Cell Program
Principle Investigator: S. Goldman, MD, PhD
9/10-8/13: \$1,029,124/3 yrs. total costs
Title: Establishment of a gene expression atlas of normal and tumor-derived neural and glial progenitor cells of the adult human forebrain

NY State Stem Cell Program
Principle Investigator: S. Goldman, MD, PhD
4/09-3/12: \$1,060,000/3 yrs. total costs
Title: iPS cell therapy for diseases of adult acquired demyelination

NIH R01/R37 Jacob Javits Award
NINDS 5R01 NS29813-10 through -16
Principal Investigator: S. Goldman, MD, PhD
7/02-6/11: \$1,475,000/7 yrs. direct costs (\$2,517,926 total; *in unfunded extension*)

Title: Angiogenic determinants of adult neurogenesis

NIH R01 Award
NINDS R01 NS052534-01 through -06
Principal Investigator: S. Goldman, MD, PhD
6/05-5/11: \$1,225,000/5 yrs. direct costs (*in unfunded extension*)
Title: Induction of striatal regeneration in Huntington's Disease

NIH P01 Program Project
NINDS P01NS050315
Principal Investigator: Maiken Nedergaard, MD, DMSc; S. Goldman, MD, PhD, co-PI
Overall project title: Astrocytes in Neurological Disease
2/07-1/12: \$1,200,000/5 yrs. total direct (Goldman section)
Goldman section title: Modulation of post-ischemic astrocytosis by human glial progenitor cells

National Multiple Sclerosis Society, 2008-2011
Principal Investigator: S. Goldman, MD, PhD (RG2898-C)
10/08-9/11: (b)(4)(b)(6)/4 yrs. direct
Title: Therapeutic remyelination by adult human ----(b)(4)----- progenitor cells

Department of Defense: Spinal Cord Injury Program
CDMRP SC090339
Principal Investigator: S. Goldman, MD, PhD
7/1/10-6/30/13: \$526,596
Title: Development of a small molecule P2X7R antagonist as a treatment for acute spinal cord injury

G. Harold and Leila Y. Mathers Charitable Foundation
Principal Investigator: S. Goldman, MD, PhD ----(b)(6)-----co-PI
2/07-1/10: (b)(4)(b)(6)/3 yrs. direct costs
Title: An astrocytic basis for human cognitive function

Adelson Program in Neural Repair and Regeneration
Principal Investigator: S. Goldman, MD, PhD
9/10-8/12: (b)(4)(b)(6)/2 yrs. direct costs
Title: -----(b)(4)----- progenitor cell target for the treatment of glioblastoma

Past support:

NIH R01 Award
NINDS 1R01 NS39559-05 through -09
Principal Investigator: S. Goldman, MD, PhD
10/04-9/10: \$1,200,000/5 yrs. direct costs
Title: Isolation and use of adult human ----(b)(4)----- progenitor cells

Biogen Idec, Inc.
Principal Investigator: S. Goldman, MD, PhD
2010: (b)(4)(b)(6)/1 yr. direct costs (*renewal under negotiation*)
Title: -----(b)(4)----- as a model for PML

James McDonnell Foundation Award
Principle Investigator: S. Goldman, MD, PhD
7/06-6/10: (b)(4)(b)(6)/4 yrs. direct costs
Title: Tumor-selective gene expression by human (b)(4) tumor stem cells

Sanofi-Aventis Pharmaceuticals, Inc.
Principal Investigator: S. Goldman, MD, PhD
8/07-7/09: (b)(4)(b)(6)/2 yrs. direct costs (b)(4)(b)(6) total
Title: Target identification in glioblastoma stem cells

National Multiple Sclerosis Society/Translational Research Partnership Award

Principal Investigators: -----(b)(6)----- co-PIs, Cambridge University, UK
7/05-6/10: (b)(4)(b)(6) direct overall (7 co-investigators); (b)(4)(b)(6) direct/5 yrs. (Goldman section)
Title: Progenitor cell implantation and -----(b)(4)----- inhibition for remyelination

CHDI/High Q, Inc.

Principle Investigator: S. Goldman, MD, PhD
6/07-5/09: (b)(4)(b)(6)/2 yrs. direct costs
Title: Defining molecular targets for the support of human medium spiny neurons

Adelson Program in Neural Repair and Regeneration

Principle Investigator: S. Goldman, MD, PhD
1/08-12/08: (b)(4)(b)(6)/1 yr. direct costs (Goldman section)
Title: -----(b)(4)----- progenitors as treatment for lethal myelin disorders of children

Adelson Program in Neural Repair and Regeneration

Principle Investigator: S. Goldman, MD, PhD
7/07-6/09: (b)(4)(b)(6)/2 yrs. (renewed following 2006-2007 initial grant)
Title: Gene expression predicted strategies of motor neuron repair -----(b)(4)-----

Adelson Program in Neural Repair and Regeneration

Principle Investigator: S. Goldman, MD, PhD
7/07-6/09: (b)(4)(b)(6)/2 yrs. direct costs (renewed following 2006-2007 initial grant)
Title: Signal activation during central remyelination

Adelson Medical Research Foundation

Principle Investigator: S. Goldman, MD, PhD
7/07-6/09: (b)(4)(b)(6)/2 yrs. direct costs
Title: Tumor stem cell signaling pathways in gliomagenesis

Adelson Program in Neural Repair and Regeneration

Principle Investigator: ---(b)(6)---; co-PI: S. Goldman, MD, PhD
7/07-6/09: (b)(4)(b)(6)/2 yr. direct costs (Goldman section)
Title: Functional organization of axons

Charles Dana Foundation

Principal Investigators: ---(b)(6)----- and S. Goldman
7/05-6/08: (b)(4)(b)(6) direct total/3 yrs.
Title: -----(b)(4)----- as a platform for the real-time evaluation of human (b)(4) progenitor cell engraftment in the lysosomal storage disorders

CNS Foundation and Children's Ataxia-Teleangiectasia Project (joint grant; 2 year renewal pending)

Principle Investigator: S. Goldman, MD, PhD
7/05-6/07: (b)(4)(b)(6)/2 yrs. direct costs
Title: Cell-based treatment of pediatric leukodystrophies

QThera, Inc.

Principle Investigator: S. Goldman, MD, PhD
10/05-9/06: (b)(4)(b)(6)/1 yr. direct costs
Title: Immune suppression strategies in -----(b)(4)----- progenitor cell-based therapy

NIH R01 Award

NINDS 1 R01 NS33106-04 through -08
Principal Investigator: S. Goldman, MD, PhD
12/99-11/05: \$810,370/total direct costs
Title: Identification and selection of adult neural precursors

NIH R01 Award
NINDS 1R01 NS41031-01 through -05
Principal Investigator: Maiken Nedergaard (Goldman co-PI)
7/01-6/05: \$1,250,000/5 yrs. total direct costs
Title: Calcium signaling among non-neuronal brain cells

Berlex Bioscience, Inc.
PI: S. Goldman, MD, PhD
7/04-6/06: (b)(4)(b)(6)/2 yrs. direct costs
Berlex Fellow in Regenerative Medicine

Merck, Inc.
Principle Investigator: S. Goldman, MD, PhD
11/03-10/05: (b)(4)(b)(6) /2 yrs. direct costs (b)(4)(b)(6) total costs
Title: Selection of -----(b)(4)----- progenitors from human neural stem cells

New York State Spinal Cord Injury Program
Principal Investigator: S. Goldman, MD, PhD
7/03-6/05: \$300,000/2 yrs. direct costs (\$375,000 total costs; *competitive renewal pending*)
Title: Use of telomerase-immortalized progenitor cells for repair of the injured spinal cord

Hereditary Disease Foundation/Cure HD Initiative
Principal Investigator: S. Goldman, MD, PhD
2/01-8/04: (b)(4)(b)(6)/2 yr. direct costs
Title: Sustained expression of -----(b)(4)----- for regeneration of huntingtin mutant striatum

Michael J. Fox Foundation
Principal Investigator: S. Goldman, MD, PhD
3/02-8/04: (b)(4)(b)(6)/2 yrs. direct costs (*competitive renewal pending*)
Title: Establishing lines of human (b)(4) progenitor cells

Christopher Reeve Paralysis Foundation
Principal Investigator: S. Goldman, MD, PhD
12/01-11/03: (b)(4)(b)(6)/2 yrs. direct costs
Title: Establishment of stable lines of human motor neuron progenitor cells

Aventis Pharmaceuticals, Inc.
Principal Investigator: S. Goldman, MD, PhD
1/01-12/03: (b)(4)(b)(6)/3 yrs. direct costs ((b)(4)(b)(6) total)
Title: Target identification via (b)(4) profiling of human neural stem and progenitor cells

Project ALS, 2000-2003
Principal Investigator: S. Goldman, MD, PhD
8/00-7/03: (b)(4)(b)(6)/3 yr. total costs
Title: Isolation, immortalization and integration of motor neuron progenitors from human spinal cord

Juvenile Diabetes Research Foundation, 2002-2003

Principal Investigator: S. Goldman, MD, PhD -----(b)(4)-----

2/02-1/03: (b)(4)(b)(6)/1 yr. total costs

Title: Promoter-based isolation and expansion of Islet stem cells from the -----(b)(4)-----

Neuronyx, Inc., 2001-2003

Principal Investigator: S. Goldman, MD, PhD

4/01-3/03: (b)(4)(b)(6)/2 yrs. direct costs

Title: Direct isolation of neural precursor cells from human mesenchymal and stromal progenitors

Human Frontiers Scientific Program, 1998-2002

PI: -----(b)(6)-----; co-PIs: -----(b)(6)-----; S. Goldman, MD, PhD

10/98-9/02 (Goldman): (b)(4)(b)(6)/4 yrs. total costs (direct & indirect)

Program title: Characterization and therapeutic application of neural stem cells

Section title: Isolation and enrichment of neural precursor cells from adult human ventricular zone

Hereditary Disease Foundation/Cure HD Initiative, 2000-2002

Principal Investigator: S. Goldman, MD, PhD

7/00-6/02: (b)(4)(b)(6)/2 yr. direct costs

Title: Can -----(b)(4)----- induction of striatal neurogenesis delay symptom onset in Huntington's?

G. Harold and Leila Y. Mathers Charitable Foundation, 1998-2001

Principal Investigator: S. Goldman, MD, PhD

1/98-12/01: (b)(4)(b)(6)/4 yrs. total costs (direct & indirect)

Title: Do capillary endothelia induce a permissive environment for adult neurogenesis?

National Multiple Sclerosis Society, 1997-2000

Principal Investigator: S. Goldman, MD, PhD

4/97-3/00: (b)(4)(b)(6)/3 yrs. direct costs

Title: Identification and isolation of ---(b)(4)----- precursors in adult brain

NIH R01 Award

NINDS 5R01 NS29813-6 through -9

Principal Investigator: S. Goldman, MD, PhD

8/97-7/01: \$725,000/4 yrs. direct costs (\$1,254,926 total)

Title: Determinants of adult neurogenesis and migration *in vitro* II (competitive renewal of R29)

NIH FIRST Award, 1992-97

NINDS 1R29 NS29813-01A1

Principal Investigator: S. Goldman, MD, PhD

7/92-6/97: \$350,000/5 yrs. direct costs

Title: Determinants of adult neurogenesis and migration *in vitro*

NIH 1 P50 HL59312-01

Program project title: Gene transfer to progenitor cells

Project director: Ronald G. Crystal, MD; section PI, S. Goldman, MD, PhD

9/97-8/99: \$120,000/2 yrs. direct costs

Section title: Induced angiogenesis in the prophylaxis and therapy of stroke (Goldman)

Irma T. Hirschl Career Scientist Award, 1993-97

Principal Investigator: S. Goldman, MD, PhD

1/93-12/97: (b)(4)(b)(6)/5 yrs. direct costs

Title: Regulatory constraints upon the differentiation of new neurons in the adult avian forebrain

G. Harold and Leila Y. Mathers Charitable and Lookout Foundations, 1995-97

Principal Investigator: S. Goldman, MD, PhD
1/95-12/97: (b)(4)(b)(6)/3 yrs. total costs
Title: The induction and control of new neuronal production in adult mammalian and human brain

American Paralysis Association Award, 1993-94
Principal Investigator: S. Goldman, MD, PhD; Contract ---(b)(4)---
7/93-6/94: (b)(4)(b)(6)/1 yr. total costs
Title: Neuronal and glial differentiation by stem cells derived from the adult human brain

G. Harold and Leila Y. Mathers Charitable and Lookout Foundations, 1991-94
Principal Investigator: S. Goldman, MD, PhD
7/91-6/94: (b)(4)(b)(6)/3 yrs. total direct costs
Title: Cellular determinants of neuronal production and migration in adult vertebrate forebrain

NIH Clinical Investigator Development Award, 1988-1993
NINDS 5 K08 NS01316
Principle Investigator: S. Goldman, MD, PhD
8/88-7/93: \$297,600/5 yrs. total direct costs
Title: Cellular neurobiology of adult neuronal replacement

G. Harold and Leila Y. Mathers Charitable and Lookout Foundations, 1988-91
Principal Investigator: S. Goldman, MD, PhD
7/88-6/91: (b)(4)(b)(6)/3 yrs. total direct costs
Title: Neuronal replacement in the repair of structural neurological damage

Cornell Scholars Award in Biomedical Science
Principal Investigator: S. Goldman, MD, PhD
7/88-6/91: (b)(4)(b)(6)/3 yrs. total direct costs
Title: Cellular neurobiology of adult neurogenesis

Invited talks (extramural only; not including paper presentations)

1990	Dept. of Neurology (grand rounds)	Medical College of Wisconsin, Milwaukee
1991	Dept. of Neurology (grand rounds)	Yale University Medical School, New Haven
1992	Dept. of Cellular Neurobiology	Rockefeller University, New York
1992	Dept. of Neurology (grand rounds)	Temple Univ. Medical School, Philadelphia
1993	Dept. of Animal Behavior	Rockefeller University, New York
1994	Seminar: Dept. of Neurosciences	Case-Western Reserve School of Medicine
1994	Symposium: The biology of radial glia	Intl. Soc. Developmental Neurosc., San Diego
1994	Dept. of Neurology (grand rounds)	University of Connecticut Medical School
1995	Dept. of Neurology (grand rounds)	University of Pittsburgh Medical School
1995	Dept. of Neurology (grand rounds)	Columbia Univ. Physicians & Surgeons
1995	Symposium: L1 structure and function	Society for Neuroscience, San Diego
1995	Symposium: Neuronal precursors as therapy	IPSEN Foundation meeting, Paris
1995	Seminar: Depts. Cell Biology and Neurology	New York Medical College, Valhalla, NY
1996	Symposium: The subventricular zone	Winter Conf. on Brain Research, Snowmass, CO
1996	Dept. of Neurology (grand rounds)	Univ. of Tennessee Medical School, Memphis
1996	Symposium: Neurobiology of bird song	Wesleyan University, CT
1996	Dean's University Lecture	Cornell Univ. Medical College
1996	Dept. of Obstetrics/Molecular Endocrinology	Yale Univ. Medical School, New Haven, CT
1997	Seminar: Neuroplasticity and brain repair	Rockefeller University, New York

1998	Panel: Migration in adult brain (<i>organizer</i>)	Winter Conf. for Brain Research, Snowbird, UT
1998	Seminar: Dept. of Cell Biology	Emory University Medical School, Atlanta, GA
1998	Seminar: CNS drug discovery group	Hoechst Marion Roussel, Bridgewater, NJ
1998	Plenary talk: Neuronal progenitor isolation	American Society for Gene Therapy, Seattle, WA
1998	Symposium: Neurobiology of bird song III	Vassar College, Poughkeepsie, NY
1998	Centennial Symposium	Cornell Univ. Medical College
1998	Plenary talk: Oligodendrocyte precursors	American Neurological Assoc., Montreal, CA
1998	Div. of Genetic Medicine: Adult angiogenesis	Cornell Univ. Medical College
1998	Symposium: New therapeutics in psychiatry	Assoc. Res. Nerv. Mental Disease, NYC, NY
1999	Dept. of Pediatric Oncology (grand rounds)	Memorial Sloan-Kettering Cancer Center
1999	Seminar: Depts. of Neuroscience/Neurology	Univ. of Illinois, Chicago, Ill.
1999	Symposium: Canavan's Disease Foundation	Jefferson Univ. Medical School, Philadelphia, PA
1999	Consultant's conf.: Stem cell therapy	MPM Capital Management, Boston, MA
1999	Symposium: Stem cells as therapy	Hereditary Disease Foundation, New York, NY
1999	Symposium: Neural stem and progenitor cells	NINDS, Bethesda, MD
1999	Seminar: Neurogenesis and angiogenesis	Regeneron Pharmaceuticals, NYC, NY
1999	Symposium: Adult neurogenesis	Society for Neuroscience, Miami, FL
1999	Seminar: Cellular strategies for remyelination	NY Inst. for Develop. Disorders, Staten Isl., NY
1999	Seminar: Molecular Med. & Neurosci. Depts.	Hershey Medical Center/Penn State, Hershey, PA
1999	Dean's University Lecture	Cornell Univ. Medical College, New York, NY
2000	Seminar: Human neural progenitor cells	Geron Corp., San Francisco, CA
2000	Seminar: Progenitor cells in brain repair	New York Autism Society, NY, NY
2000	Organizers' symposium	Human Brain Mapping 2000, San Antonio, TX
2000	Symposium: Oligoneogenic progenitor cells	Gordon Conference on Myelin, Italy
2000	Seminar: Human neural precursor cells	Univ. of Nebraska. Omaha, Neb.
2000	Keynote speaker	National MS Society, St Louis, MO
2000	Seminar: Human neural progenitor cells	Accorda Therapeutics, Tarrytown, NY
2001	Consultant conf.: Human neural stem cells	Merck, Warren, NJ
2001	Symposium: White matter progenitors	Winter Conf. for Brain Research, Steamboat, CO
2001	Seminar: Human neural progenitor cells	Cambridge Genomics Center, Cambridge, MA
2001	Symposium: Stem cells for brain repair	Engineering Tissue Growth, Pittsburgh, PA
2001	Seminar: Neurogenesis in adult brain	MRC Center for Brain Repair/Cambridge Univ.
2001	Seminar: Distinguished Scientist series	Merck Research Labs, London, England
2001	Symposium: Neurodegenerative diseases	Keystone Conference, Steamboat, CO
2001	Seminar: Dept. of Neuroscience	Johns Hopkins Univ. Med. School, Baltimore
2001	Seminar: Adult neurogenesis and disease	The Buck Institute, Novato, CA
2001	Seminar: Human neural progenitors	Wallenberg Inst., Lund University, Lund, Sweden
2001	Symposium: Isolation/induction of stem cells	Netherlands Inst. For Brain Research, Amsterdam
2001	Neuroscience seminar series	SUNY/Stony Brook, NY
2001	Seminar: Dept. of neurobiology	Yale University Med. School, New Haven, CT
2001	Symposium: Neural stem cells (<i>organizer</i>)	Annual meeting of the ARNMD, NY, NY
2001	Elsevier Symposium: Neural stem cells	Society for Neuroscience meeting, San Diego, CA
2001	Symposium: Clinical use of neural stem cells	Asilomar Conf. CNS Regeneration, Monterey, CA
2002	Symposium: Stem cells in degenerative dis.	Adler Foundation, Salk Institute, San Diego, CA
2002	Seminar: Expression profiling of progenitors	Cambridge Genomics Ctr., Aventis, Boston, MA
2002	Symposium: Stem cells for brain repair	AAAS annual meeting, Boston, MA
2002	Intl. symposium: Stem cell therapy	Yonsei University symposium, Seoul, Korea
2002	Neuroscience & Neurology seminar series	Dept. Neurology, Univ. of Mass., Worcester, MA
2002	Grand rounds: Neural stem cell therapy	Dept. Neurology, Johns Hopkins U. Med. School
2002	Seminar: Adult neural progenitor cells	Dept. Neurosci., Waisman Inst., U. of Wisconsin
2002	Grand rounds: Neural stem cells/therapy	Dept. Neurology, NYU Med. Ctr.-Bellevue, NY
2002	Seminar: Induction of endogenous stem cells	The Salk Institute, San Diego, CA

2002	Seminar: Cell therapy for the CNS	Dept. Neuroscience, Johns Hopkins U. Med. Sch.
2002	Seminar: Adult neurogenesis	Dept. Anatomy & Cell Biol., Univ. Wisconsin
2002	Symposium: Huntington's Dis.	Hereditary Disease Fdn. meeting, Boston, MA
2002	Seminar: Adult neurogenesis	Rockefeller University, NYC
2002	Symposium: Ethics of stem cell use	Albany Medical College, NY
2002	Symposium: Cell-based remyelination	National MS Society Intl. Symp./Nice, France
2002	Symposium: Stem cell-based therapy	AstraZeneca Symposium, Cotes d'Azur, France
2002	Inaugural Symposium: Stem cell therapy	Inst Cell Engineering, Johns Hopkins U Med. Sch.
2002	Neurobiol. of Disease Workshop (<i>organizer</i>)	Society for Neurosci annual meeting, Orlando, FL
2002	Intl. symposium: Stem cell therapy	Takeda Symposium, Kobe, Japan
2002	Seminar: Neural stem cells	Keio Univ. Medical Society, Tokyo, Japan
2003	Seminar: Neural progenitors and CNS repair	Dept. Neurology, Oregon Health Sci. U., Portland
2003	Workshop: Neurogenesis by glial progenitors	Winter Conf. On Brain Research, Snowbird, Utah
2003	NIH symposium: Neurogenesis and addiction	NIH/NIDA/NINDS
2003	Symposium: Progenitor cell-based therapy	Gordon Conf.: Aging & Neurodegenerative Dis.
2003	Seminar: Adult neural progenitors	Dept. Cell Biol., Emory U. Med. School, Atlanta
2003	Symposium: Glial Progenitor Cell Biology	Am. Soc. Neurochemistry, Newport Beach, CA
2003	NIH symp. on human embryonic stem cells	NIH, Bethesda, MD.
2003	Seminar: Stem cells in neuroimmune disease	MBL, Woods Hole, MA
2003	Symposium: NY State Spinal Cord Research	Rockefeller Univ., NYC, NY
2003	Symposium: Ethics of chimeric brains	Johns Hopkins Hospital, Baltimore, MD
2003	Blaffer lecturer in Neurooncology	MD Anderson Hospital, Houston, TX
2003	Seminar: Purines in CNS injury & regeneration	Pfizer Research Labs, Groton, CT
2003	Grand rounds: Stem cell disease targets	Weill Medical College of Cornell U., NYC
2004	Novartis Foundation Symposium: Stem cells	London, England
2004	Seminar: Therapeutic use of stem cells	Merck Research Labs, Terlings Park, UK
2004	Francoqui Symposium speaker	Brussels, Belgium
2004	Seminar: Neuroscience and Cell biology series	Univ. of North Carolina, Charlotte, NC
2004	Symposium: Scandanavian stem cell biology	Lund University, Sweden
2004	Killam lecturer in Neurobiology	Montreal Neurological Institute, Montreal
2004	Naff annual lecturer in molecular biology	University of Kentucky
2004	Seminar: Human neural progenitor cells	NINDS, Bethesda, MD
2004	Seminar: Neural stem cells in tumor biology	MD Anderson brain tumor course, Houston, TX
2004	Schering symposium: CNS Regeneration	Schering Research Foundation, Napa, California
2004	Symposium: Remyelination strategies	American Soc. for Neurochemistry, NYC
2004	Symposium: Adult stem cells	Iowa State/Mayo Clinic symposia, Ames, Iowa
2004	Presidential symposium speaker	2004 American Neurological Assoc., Toronto
2004	Symposium: Stem cell ethics	Rice University/James Baker Instit., Houston, TX
2004	Seminar: Cell therapy of leukodystrophies	Natl. Inst. Biomed. Imaging & Bioeng. Bethesda
2005	Seminar: Stem cell-based therapeutics	Lerner Inst. of Cleveland Clinic, OH
2005	Seminar: Progenitor cell genomics	Berlex Bioscience, Richmond, CA
2005	Merck consultants' panel	Merck, Inc. Branchburg, NJ
2005	Seminar: Induction of adult neural stem cells	Inst. Neurogenetics., U. Southern Cal., LA, Calif.
2005	Stem cell applications in myelin disease	National MS Society, Washington, DC
2005	Keynote speaker: Glia as progenitors	VII th European Mtg. Glial Research, Amsterdam
2005	Symposium: Regenerative medicine	Schering-RIKEN symposium, Kobe, Japan
2005	Seminar: Banbury Meeting on ALS	Cold Spring Harbor Laboratory, NY
2005	Keynote speaker: Departmental initiation	Methodist Hospital/Cornell, Houston, TX
2005	Board presentation: Neural stem cell tumors	American Cancer Society, NYC, NY
2005	Featured speaker: Cell-based therapy	Asilomar Meeting on Neural Regeneration, CA
2005	Workshop: Neural regeneration	Adelson Program in Neural Repair,

Las Vegas

2006	Symposium: Imaging myelin repair	1 st Intl. Symp. Myelin Imaging, Vancouver, BC
2006	Symposium: Stem cell therapy of Parkinson's	World Parkinson's mtg., Washington, DC
2006	Seminar: Banbury Meeting on neurogenesis	Cold Spring Harbor Laboratory, NY
2006	Plenary session: Stem cell therapeutics	Am. Soc. Exp. Neuro. Therap., Washington, DC
2006	Symposium: Stem cells in Neurologic Disease	American Acad. Neurology mtg., San Diego, CA
2006	Symposium: Stem cells of the CNS	Virginia Neuroscience Soc., Richmond, VA
2006	Symposium: Stem Cell technology	Univ. of Wisconsin/WiCell, Madison, WI
2006	Symposium: Stem cell therapy in MS	NY Academy of Sciences, NYC, NY
2006	Seminar: Stem cell strategies in Parkinsons	Amgen, San Francisco, CA
2006	Seminar/course: Progenitor cell tumors	Cold Spring Harbor Laboratory, NY
2006	Board presentation: Cell-based CNS therapy	Sanofi-Aventis, Bridgewater, New Jersey
2006	Keynote speaker: Neuroscience Research Day	Univ. of British Columbia, Vancouver, BC
2006	Symposium: Cell-based spinal cord repair	Schmitt symposium, Univ. Rochester
2006	Symposium: Neural regeneration strategies	Harvard Medical School, Cambridge, MA
2006	Seminar: Stem cell treatment of CNS Disease	Univ. of Illinois, Urbana-Champaign, IL
2006	Symposium: Stem cell genetics	Univ. of Florida, Gainesville, FL
2006	Plenary speaker: Brain tumor stem cells	Society for Neurooncology mtg., Orlando, FL
2006	Symposium: Tumor stem cells of the CNS	Max Delbruck Ctr. for Molecular Medicine, Berlin
2006	Remyelination strategies in MS	National MS Society annual meeting, Orlando, FL
2006	Tumor stem cells as drug targets	Discovery Research Board; Sanofi-Aventis, NJ
2006	Stem cell-based phenotypic screens in HTS	Target Discovery, Merck Inc., West Point, PA
2007	Co-organizer: Stem cell-based MS therapies	Natl. MS Soc. symposium, San Francisco, CA
2007	Workshop: Adult glial progenitor cells	Winter Conf. Brain Res., Snowmass, CO
2007	Human ES cell-based treatment of Parkinson's	Winter Conf. Brain Res., Snowmass, CO
2007	Spinal neuronal production by human ES cells	Christopher Reeve Paralysis Fdn., NYC, NY
2007	Tumorigenesis from endogenous progenitors	Oncology Division, Sanofi-Aventis, Paris
2007	Induction of neurogenesis in Huntington's	High-Q Foundation Intl. Symp., Paris
2007	Symposium: Cell-based remyelination	Rutgers and UMDNJ, New Brunswick, NJ
2007	Symposium: Cancer & Regenerative Med	Brown U./RI Ctrs. of Excellence., Providence, RI
2007	Symposium: Stem Cells and CNS Regeneration	Serono/Biosymposia, Cambridge, MA
2007	Plenary: Cell therapy of leukodystrophies	Intl. Congress on NCL/Batten's Dis, Rochester, NY
2007	Keynote: Stem cell-based therapeutics	San Diego Stem Cell consortium, Burnham Inst.
2007	Grand rounds, Dept. of Neurology	Johns Hopkins Hospital, Baltimore, MD
2007	Seminar: Adult neurogenesis	Dept. of Neurosciences, Lehigh Univ., PA
2007	Dopaminergic transplantation in Parkinsons	Banbury meeting, Cold Spring Harbor, NY
2008	Induced neurogenesis in dementing illness	Adler Symposium, Salk Inst., San Diego
2008	Symposium: Cell therapy of leukodystrophy	American Soc. for Gene Therapy, Boston, MA
2008	Symposium: Projection neuron reconstruction	Harvard Univ. Stem Cell Institute, Cambridge, MA
2008	Keynote: Translational medicine symposium	University of Vermont, Burlington, VT
2008	Seminar: Progenitor cell therapy of the CNS	Yale Univ., New Haven, CT
2008	Symp: CNS progenitors as pathogen targets	Pasteur Institute, Paris
2008	Plenary: Gene therapy induced neurogenesis	Intl. Neurotrophin Mtg., Kfar Blum, Israel
2008	Seminar: Tumor stem cell migration in brain	Dept. of Oncology, Tel-Aviv U. Med. School, Israel
2008	Plenary symposium: White matter disorders	Amer. Neurological Assoc., Salt Lake City, UT
2008	Neurology/neurosurgery grand rounds	Weill Cornell Medical College, NYC, NY
2008	Seminar: Translational stem cell biology	Rockefeller University, NYC
2008	Seminar: Signal pathways of neural stem cells	California Inst. of Technology, Pasadena, CA
2009	Symposium: Cell-based therapy	Upstate Medical Center, Syracuse, NY
2009	Plenary: Humanized models of the CNS	Int. Conf. Neurovirology, Miami, FL
2009	Seminar: Cell-based treatment of Huntingtons	Sanofi-Aventis, Cambridge, MA.
2009	Opening lecture: Lab of Regenerative Med.	Cambridge Univ. Stem Cell Ctr, Cambridge, UK
2009	Symposium: Treatment of leukodystrophies	ELA Foundation symposium, Luxemborg

2009	Seminar: Cell-based treatment of myelin dis.	Biogen Idec, Cambridge, MA
2009	Symposium: Stem Cell biology in NY	NY Stem Cell Program, Albany, NY
2009	Symposium: Stem Cell therapeutics	UCSF Medical School, San Francisco, CA
2009	Symposium: Translational Stem Cell Research	NY Stem Cell Foundation, NYC, NY
2009	Symposium: Regenerative medicine	Temple Univ. Sch. Medicine, Philadelphia, PA
2009	Grand rounds, Dept. of Neurology	Harvard Med. School, Beth-Israel-Deaconess Hosp.
2010	Neuroscience Seminar: Myelin disease	Cold Spring Harbor Labs, NY
2010	Keynote: Myelin Repair strategies	Gordon Conference on Myelin, Ventura, CA
2010	Seminar: Cell-based treatments of spinal injury	Univ. of Miami, Miami, FL
2010	Presidential Award lecture: The new neurology	American Academy of Neurology, Toronto
2010	Seminar: Models of stem cell function	Jackson Laboratory, Bar Harbor, Maine
2010	Symposium: Cell therapy in Stroke	Princeton Conference, Cambridge, MA
2010	Symposium: Stem cell neurotherapeutics	Millipore Symposium, Keio Univ., Tokyo
2010	Seminar: Chimeric models of glial pathology	Vertex Pharmaceuticals, Cambridge, MA
2011	Keystone Symposium: Adult Neurogenesis	Keystone Meeting, Taos, New Mexico

Pending talks:

2011	----- (b)(6) -----	----- (b)(6) -----
2011	-----	-----
2011	-----	-----

Patents/applications

1. A method for separating cells

U.S. Patent 6,245,564; filed 1/23/97; issued 6/12/01

Inventors: Steven Goldman and Hong Wu; Owner: Cornell University Research Foundation

2. A method for separating cells (*awarded continuation*)

U.S. Patent 6,692,957; filed 1/23/97; issued 2/17/04

Inventors: Steven Goldman and Hong Wu; Owner: Cornell University Research Foundation

3. -----
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4. Discovery, localization, harvest and propagation of an FGF2 and BDNF-responsive population of neural and neuronal progenitor cells in the adult human forebrain

U.S. Patent 6,812,027; filed 3/18/99; issued 11/2/04

Inventors: Steven Goldman and Maiken Nedergaard; Owner: Cornell University Research Foundation

5. -----
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6. Specific identification, isolation and purification of adult human hippocampal neural progenitor cells

U.S. Patent no. 7,785,882; filed 1/18/00, issued 8/31/10.

Inventor: Steven Goldman; Owner: Cornell University Research Foundation

7. Gene therapy-mediated induction of neurogenesis in the adult brain

U.S. Patent 7,037,493; filed 5/1/01; issued 5/2/06

Inventors: Steven Goldman and Abdellatif Benraiss; Owner: Cornell University Research Foundation

8. Telomerase-immortalized human neural progenitor cells

U.S. Patent 7,150,989; filed 8/10/01; issued 8/06

Inventors: Steven Goldman and Neeta Roy; Owner: Cornell University Research Foundation

9. -----

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10. -----

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11. Enhancing neurotrophin-induced neurogenesis by endogenous neural progenitor cells by concurrent overexpression of BDNF and an inhibitor of a pro-gliogenic bone morphogenetic protein

U.S. Patent 7,576,065 B2; issued 8/18/09

Inventors: Steven Goldman, Eva Chmielnicki and Aris Economides

Owners: Cornell University Research Foundation

12. -----

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13. -----

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17. -----

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18. -----

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19. Purines are self-renewal signals for neural stem cells, and purine receptor antagonists promote neuronal and

glial differentiation therefrom

U. S. Patent 7,829,332, filed 2/10/05; *issued 11/9/2010*

Inventors: Steven A. Goldman, Maiken Nedergaard, Jane Lin

20. Method of inducing neuronal production in the caudate nucleus and putamen.

U.S. Patent 7,803,752; filed 3/29/06; *issued 9/28/10*

Inventors: Steven Goldman and Abdellatif Benraiss

Owner: Cornell University Research Foundation

21. Human-glial chimeric mouse brains for assessment of in vivo responses of human glial cells to injury

U.S. Patent 7,524,491; filed 12/18/06, *issued 4/14/09*

Inventors: Steven Goldman and Fraser Sim; Owner: University of Rochester

22. -----
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23. -----

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Incomplete list of filed applications

Publications (bold indicates first or senior authorship):

- Lorenz, D., Goldman, S. Vagal mediation of the cholecystokinin satiety effect in rats. Physiol. Behav. 29:599-604, 1982. PMID: 6294698.
- Goldman, S.**, Nottebohm, F. Neuronal production, migration and differentiation in a vocal control nucleus of the adult female canary brain. Proc. Natl. Acad. Sci. 80:2390-2394, 1983. PMID: 6572982; PMCID: PMC393826.
- Goldman, S.**, Monahan, J., Schneider, B. The regional and subcellular development of cholecystokinin immunoreactivity in vertebrate brain. Dev. Brain Res. 22:237-246, 1985. PMID: 4052814.
- Goldman, S.**, Gandy, S. Squamous carcinoma as a late complication of intra-cerebroventricular epidermoid. J. Neurosurg. 66:618-620, 1987.
- Goldman, S.**, Pulsinelli, W., Clarke, W., Kraig, R., Plum, F. The effects of extracellular acidosis on neurons and glia in vitro. J. Cereb. Blood Flow Metab. 9: 471-477, 1989. PMID: 2738113.
- Goldman, S.** Neuronal development and migration in explant cultures of the adult canary forebrain. J. Neuroscience 10: 2931-2939, 1990. PMID: 2204684.
- Nedergaard, M., **Goldman, S.**, Desai, S., Pulsinelli, W. Acid-induced death in neurons and glia. J. Neuroscience 11:2489-2497, 1991. PMID: 1869926.
- Goldman, S.**, Zaremba, A., Niedzwiecki, D. In vitro neurogenesis by neuronal precursor cells derived from the adult songbird brain. J. Neuroscience 12: 2532-2541, 1992. PMID: 1613545.
- Goldman, S.**, Nedergaard, M. Newly generated neurons of the adult songbird brain become functionally active in long-term culture. Dev. Brain Res. 68:217-223, 1992. PMID: 1394968.
- Goldman, S.**, Lemmon, V, Chin, S. Migration of newly generated neurons upon ependymally derived radial guide cells in explant cultures of the adult songbird forebrain. Glia 8:150-160, 1993 (cover photo). PMID: 8225557.
- Nedergaard, M., Goldman, S. Carrier mediated transport of lactic acid in cultured neurons and astrocytes. Am. J. Physiol. 265: R282-289, 1993. PMID: 8368382.
- Kirschenbaum, B., Nedergaard, M., Preuss, A., Barami, K., Fraser, R., **Goldman, S.** In vitro neuronal production and differentiation by precursor cells derived from the adult human forebrain. Cerebral Cortex 4: 576-589, 1994. PMID: 7703685.
- Barami, K., Lemmon, V., **Goldman, S.** N-cadherin and Ng-CAM/8D9 are involved serially in the migration of newly generated neurons into the adult songbird brain. Neuron 13: 567-582, 1994. PMID: 7522481.
- Kirschenbaum, B., **Goldman, S.** Brain-derived neurotrophic factor promotes the survival of neurons arising from the adult rat forebrain subependymal zone. Proc. Natl. Acad. Sci. 92: 210-214, 1995. PMID: 7816819; PMCID: PMC42847.
- Hidalgo, A., Iversen, K., Barami, K., **Goldman, S.** Estrogens and non-estrogenic ovarian influences combine to promote the recruitment and decrease the turnover of new neurons in the adult female canary brain. J. Neurobiol., 27: 470-487, 1995. PMID: 7561828.
- Barami, K., Iversen, K., Furneaux, H., **Goldman, S.** Hu proteins as an early marker of neuronal phenotypic differentiation by subependymal zone cells of the adult songbird forebrain. J. Neurobiol., 28: 82-101, 1995.

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Goldman, S. Neurogenesis and neuronal precursor cells in adult forebrain. The Neuroscientist 1:338-350, 1995.

Nedergaard, M., Cooper, A., Goldman, S. Gap junctions are required for the propagation of spreading depression. J. Neurobiol. 28: 433-444, 1995. PMID: 8592104.

Goldman, S., Williams, S., Barami, K., Lemmon, V., Nedergaard, M. Transient coupling of NgCAM expression to NgCAM-dependent calcium-signaling during migration of new neurons in the adult songbird brain. Molec. Cell. Neurosci., 7: 29-45, 1996. PMID: 8812057.

Nedergaard, M., Goldman, S. Spreading depression-A gap junction-mediated event? In: Gap junctions in the nervous system. D. Spray, R. Dermietzel, eds. R. G. Landes: Austin, 1996, pp. 301-312.

Goldman, S., Zukhar, A., Barami, K., Mikawa, T., Niedzwiecki, D. Ependymal/subependymal zone cells of the postnatal and adult songbird brain generate both neurons and nonneuronal siblings *in vitro* and *in vivo*. J. Neurobiol., 30: 505-520, 1996. PMID: 8844514.

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Goldman, S. Comparative strategies of subependymal neurogenesis in the adult forebrain. In: Isolation, characterization and utilization of CNS stem cells. F. Gage, Y. Christen, Eds. Fondation IPSEN Symposia: Springer-Verlag, 1997, pp. 43-65.

Goldman, S., Kirschenbaum, B., Harrison, C., Thaler, H. Neuronal precursors of the adult rat ventricular zone persist into senescence, with no decline in spatial extent or response to BDNF. J. Neurobiol. 32: 554-566, 1997 (*cover photo*). PMID: 9183737.

Goldman, S., Nedergaard, M., Harrison-Restelli, C., Jiang, W., Keyoung, H. M., Leventhal, C., Pincus, D., Shahar, A., Wang, S. Neural precursors and neuronal production in the adult mammalian forebrain. Ann. N.Y. Acad. Sci. 835: 30-55, 1997. PMID: 9616760.

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Pincus, D., Keyoung, H., Harrison-Restelli, C., Sakakibara, S., Okano, H., Goodman, R., Fraser, R., Edgar, M., Nedergaard, M., **Goldman, S.** FGF2/BDNF-associated maturation of new neurons generated from adult human subependymal cells. Annals Neurol. 43: 576-585, 1998. PMID: 9585351.

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